THE FARADAY CENTENARY CELEBRATIONS.

A GENERAL ACCOUNT BY CLIFFORD C. PATERSON, O.B.E., President.

The Faraday Centenary Celebrations have done much more than mark the boundary between the first and second centuries of electrical engineering—significant as such a frontier may be in itself. The celebrations have brought engineers back to the origins of their art and have reminded them that throughout its first century there has always existed a background of strenuous work and thought on fundamental science—that this science has been not merely a useful complement to the activities of the engineer, but also an essential (probably the most essential) factor. For out of this have sprung from time to time important developments which have made electrical engineering the most universal of the engineering arts. If, therefore, there has been any tendency to regard electrical engineering as a child no longer needing the fostering care of its mother science, engineers are now more inclined to view science as a strong husband to whom they look to give them productivity and new strength to combat hampering influences and competition.

Above all, however, the celebrations have shown men Michael Faraday as those who lived with him knew him. His influence has lived again to stimulate and to inspire.

The celebrations, which lasted from Monday 21st September to Friday 24th September, were attended by over 100 delegates representing 25 countries—men sent by universities and learned societies from all over the world (a list will be found on pages 1389 and 1390).

The Royal Institution (Faraday's own home) organized, during that week, meetings and receptions. The Royal Society co-operated, and the British Association held its Centenary Meeting during the same period. The Institution of Electrical Engineers held both its Summer Meeting and its Annual Conversazione. But the Institution's greatest contribution was the Faraday Centenary Exhibition at the Albert Hall. The Institution initiated and took responsibility for this, and put down a sum of £10 000 to defray the cost. The credit for the excellent organization of this Exhibition is due to the director, Col. W. A. Vignoles, and staff of the Electrical Development Association. The majority of the exhibits were provided by the Royal Institution, the British Electrical and Allied Manufacturers' Association, the Federal Council for Chemistry (who also contributed to the central fund), the Cable Makers' Association, the Central Electricity Board, the British Broadcasting Corporation, and the British Electrical Development Association. The fact that exhibits bore no trade advertisements is arresting, and in itself makes the Exhibition a memorable one, seeming to reflect something of the Faraday spirit—science, for the sake of humanity, rather than for aggrandizement.

The many events entailed by these activities were fitted together with a minimum of clashing, through the cordial interworking of the bodies concerned.

The week of the Faraday Celebrations was heralded by the floodlighting of many of the public buildings of London by the International Illumination Congress. This Congress had been holding its meeting prior to the Faraday week and desired to make its own characteristic contribution to the celebrations. London was therefore floodlighted throughout the week as never before. The weather was exceptionally favourable, a welcome accompaniment to the universal enthusiasm A view of the Institution building flood-lighted will be found on Plate 2 in this issue of the *Journal*.

Faraday's Grave.

In a quiet, old-world corner of Highgate Cemetery, with a wonderful view over the London where he laboured, Faraday was buried in 1867. The chief officers of the Royal Institution and of the Institution of Electrical Engineers visited this grave on Sunday afternoon, 20th September, and in the presence of a party of visitors laid upon it memorial wreaths.

Commemorative Meeting at Queen's Hall.

During Monday, 21st September, the delegates from abroad were received at the Royal Institution, and at 8 p.m. at the Queen's Hall there opened a most impressive Commemorative Meeting, at which Lord Eustace Percy presided. The proceedings were broadcast, the speakers being the Prime Minister (the Rt. Hon. J. Ramsay MacDonald), Le Duc de Broglie, the Marchese Marconi, Prof. Elihu Thomson, Prof. P. Zeeman, Prof. P. Debye, Lord Rutherford, and Sir William Bragg, O.M., K.B.E., F.R.S. (Sir William Bragg's address will be found on page 1363.)

A magnificent selection of music by the B.B.C. orchestra, conducted by Sir Henry Wood, formed a most appropriate setting when interspersed between these addresses. The speakers dealt with different aspects of Faraday's character, his genius and his contributions to science. All who attended must have yielded to the spell of the occasion and cannot fail to retain a vivid picture of it.

I.E.E. Meeting at Kingsway Hall.

On Tuesday morning, 22nd September, the Summer Meeting of the Institution of Electrical Engineers commenced with a meeting at the Kingsway Hall, at which the President was in the chair. There were five addresses bearing generally on the place of electrical engineering in modern life, as revealed in power engineering, traction, communications, and domestic activity. The speakers were Mr. J. S. Highfield, Sir Josiah

Stamp, Miss C. Haslett, Mr. Ll. B Atkinson, Sir Oliver Lodge, and the President, and an account of their addresses will be found elsewhere in the *Journal* (see pages 1368 to 1384). The interest of a large and influential audience was maintained throughout the whole of the proceedings, and one felt small wonder that it should be so. For the audience had come not merely to hear the addresses but to share in an historic occasion—with a sense of grateful acknowledgment for all that engineers had inherited from Faraday.

I.E.E. Conversazione.

This was probably the most brilliant occasion of the week. Held at the Albert Hall, on the occasion of the first public view of the Exhibition, with nearly 3 000 people in evening attire, the scene is one never likely to be forgotten by those who were present. Almost as striking as the exhibits themselves was the lighting scheme which illuminated them. The whole roof of the Hall was screened by a false ceiling of draped fabric, and illuminated by 250 floodlights placed in front of the top gallery. The uniformity of this ceiling was relieved by a huge column of light, pendant from the centre, and by similar columns on the walls near the ceiling. The effect of this on the spectacular appearance of the exhibition led many to say that it was one of the most courageous and effective efforts yet made in artificial lighting.

Members and their guests were received by the President and Mrs. Paterson. The boxes and galleries were used for rest and refreshment, and the band of the Royal Engineers gave further animation to a memorable scene.

The centre of gravity of all the exhibits was a replica of the Royal Institution statue of Faraday raised on a pedestal, which had upon it a beautiful bronze relief. This replica, a view of which is reproduced as the frontispiece to this issue of the *Journal*, is to find a permanent place in the Institution building. Immediately round the statue were personal relics in the form of experimental apparatus and manuscripts. Radiating from this centre were nine segments, on each of which was displayed the evolution of some branch of electrical engineering or of chemical engineering.

These sections represented the following:—generation, transmission and distribution, transformation of energy, transport, power for industry, industrial heating, domestic life, chemistry, communications and radio.

The general appearance of the Exhibition can best be grasped from the accompanying illustration (see Plate 1). There was a complete absence of advertisement, and trade names were not displayed.

On this Tuesday evening a conversazione was held at the Royal Institution which was attended by a large number of guests.

Opening of the Exhibition.

On Wednesday afternoon, 23rd September, the Exhibition was formally opened to the public by General Smuts, who had just been installed as President of the British Association. After an expression of thanks by Col. Crompton, a message was received by radio from Dr. F. B. Jewett, speaking from Boston. The proceedings were broadcast. An account of the speeches will be found on pages 1385 to 1387.

British Association Centenary.

In the evening General Smuts delivered his inaugural address as President of the British Association to a large audience in the Central Hall, Westminster.

The acoustics of the hall left something to be desired, but those who heard well were agreed as to the statesmanlike and comprehensive character of General Smuts's philosophy.

Other Events.

The foregoing major events of the week were followed by two days of visits paid to places of scientific and industrial interest in and around London.

On Thursday evening the Royal Society gave a Soirée to a large and distinguished company. On Friday evening a Banquet was given by the Government to all the guests and delegates to the Faraday Celebrations. Lord Reading presided in the absence, through indisposition, of the Prime Minister. The speeches by foreign delegates showed the deep impression which the week's events had made on them. The toast to the memory of Faraday, proposed by the Marquis of Reading, was replied to by the Treasurer of the Royal Institution, and by the President of the Institution of Electrical Engineers, whose remarks will be found on page 1388.

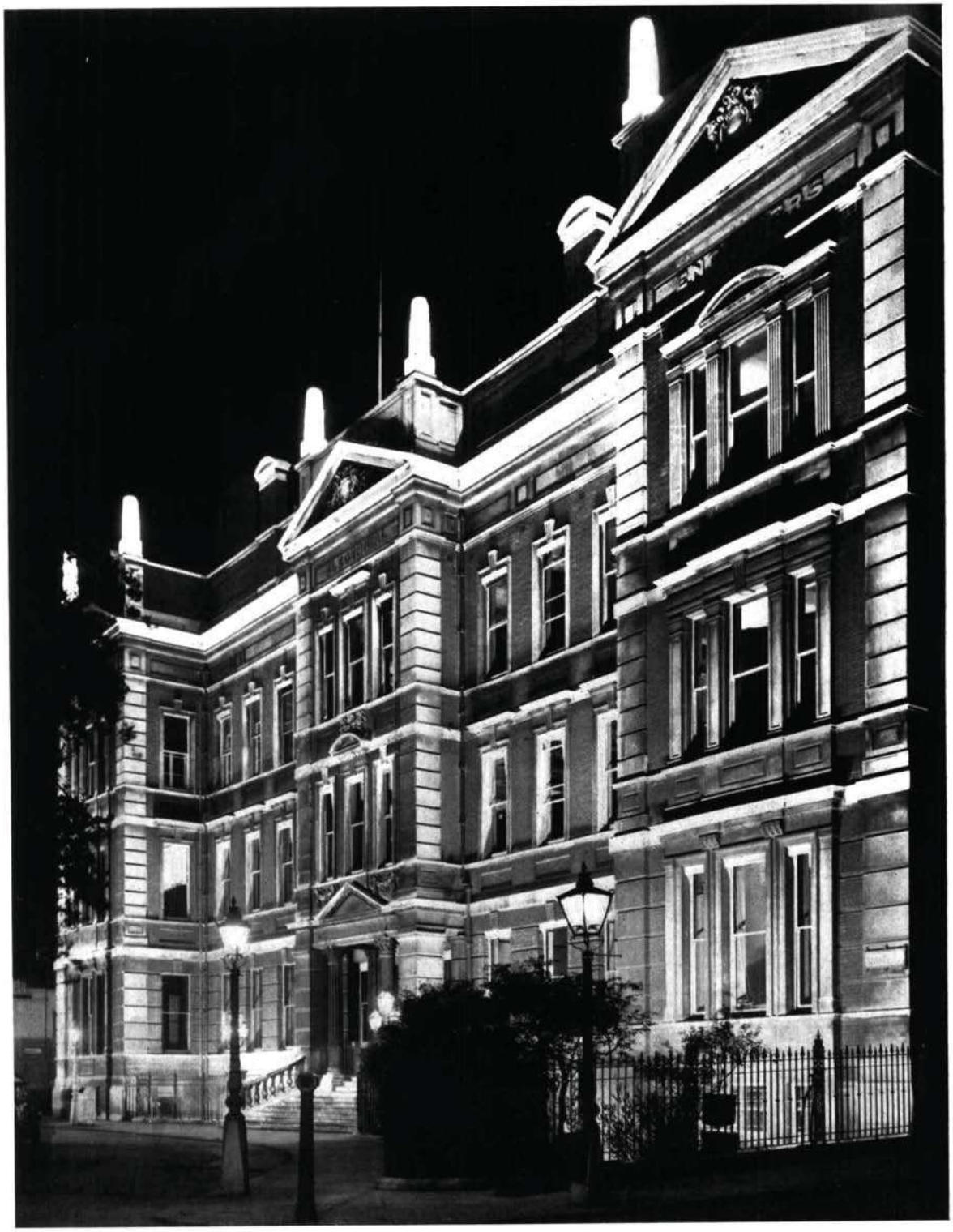
On the same evening the Institution of Electrical Engineers gave a Ball at the Dorchester Hotel, a brilliant finale to the Summer Meeting and to the week's celebrations. It was attended by nearly 500 members and guests.

So the crowded events of that memorable week ended. It was a period of intense pride for the countrymen of Michael Faraday, and particularly for members of this Institution, whose especial privilege it has been to do him honour before the world.

The Albert Hall Exhibition continued throughout the following week It was crowded every day—and all who visited it were strong in their praise of its conception and execution, and particularly of the corps of 350 demonstrators who gave freely of their time and energy to help all who came to understand the exhibits. The total attendance was over 50 000.

A View of the Faraday Centenary Exhibition, Royal Albert Hall, 23rd September–3rd October, 1931.

Plate 2.



A View of the Institution Building Flood-lighted on the Occasion of the International Illumination Congress and the Faraday Centenary Celebrations.

Plate 3.
(Mr. Fahie's paper.)

GALVANI.
1737–1798.

VOLTA.
1745–1827.

OERSTED
1777–1851.

FARADAY.
1791–1867.

AMPÈRE.
1775–1836.

ARAGO
1786–1853.

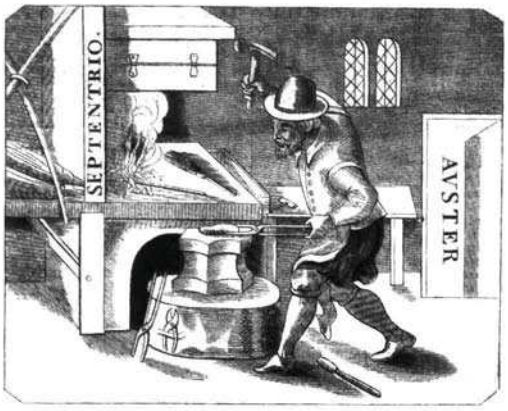
STURGEON.
1783–1850.

HENRY.
1797–1878.

FARADAY AND HIS CONTEMPORARIES, TO WHOSE EPOCH-MAKING DISCOVERIES HE PUT THE KEYSTONE IN 1831.

Plate 4.
(Mr. Fahie's paper.)

GILBERT.
1540–1603.



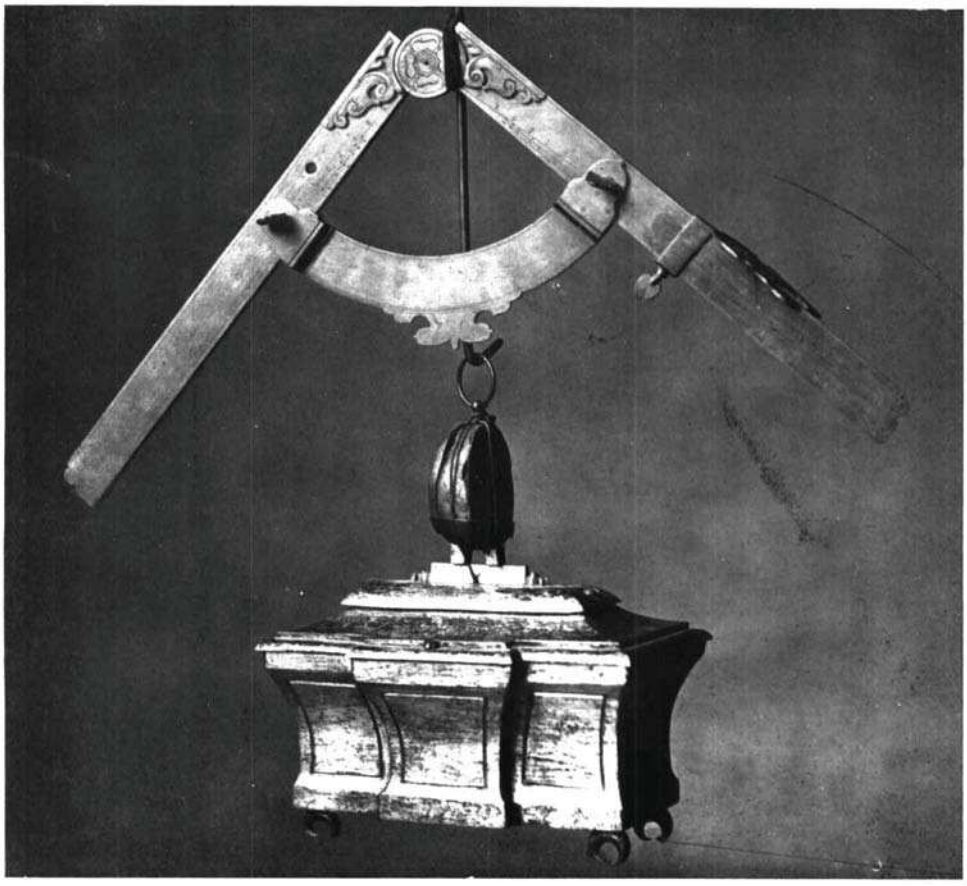
GILBERT MAKING A MAGNET BY BLOWS ON A HEATED STEEL BAR.

GILBERT AND QUEEN ELIZABETH

[From a painting by A. Ackland Hunt. Presented by the Institution on the 10th December, 1903, the 300th anniversary of Gilbert's death, to the Corporation of Colchester in commemoration of his scientific achievements]

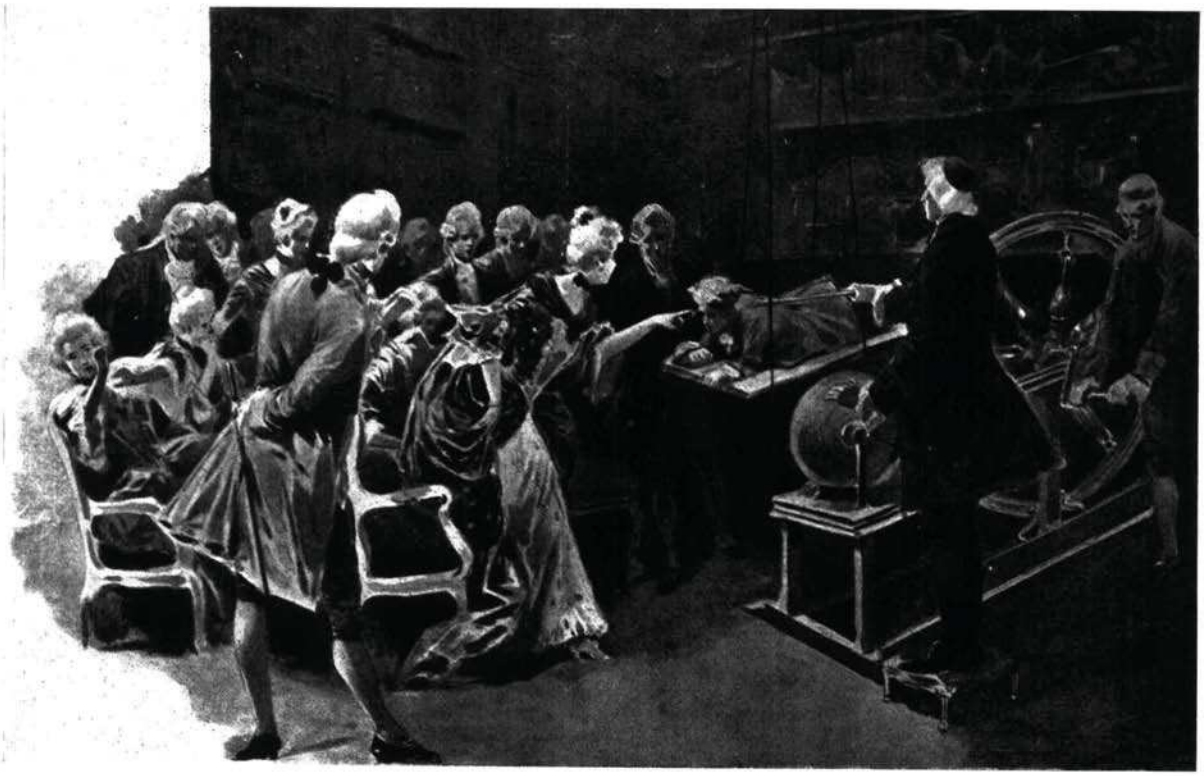
Plate 5.
(Mr. Fahie's paper.)

1564–1642.

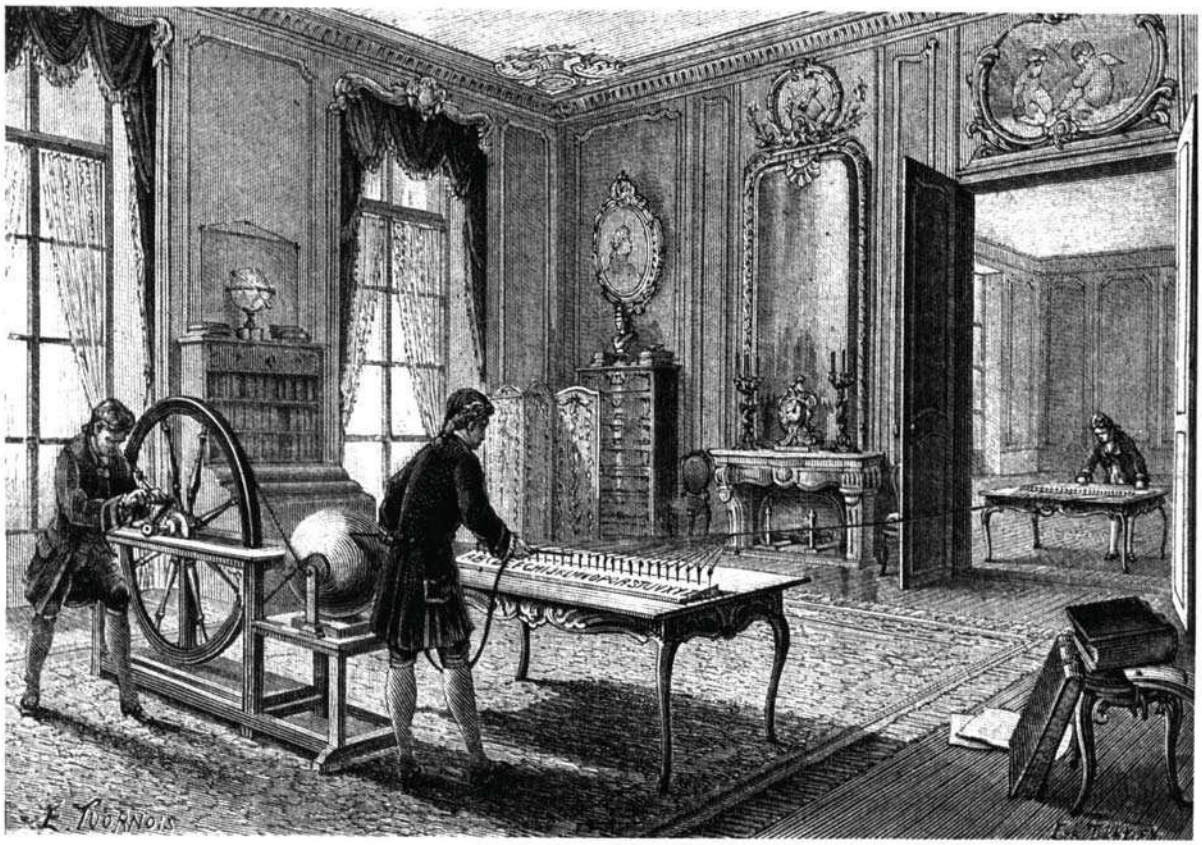


GALILEO'S LOADSTONE.

Plate 6.
(Mr. Fahie's paper.)



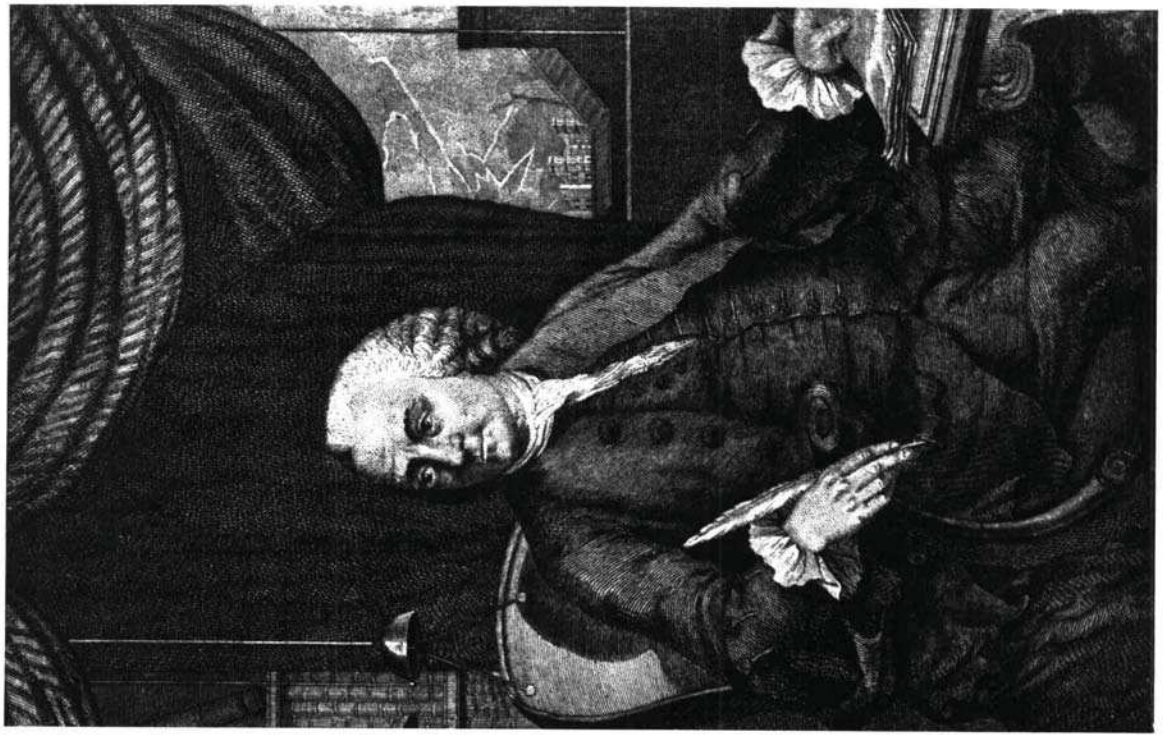
ABBE NOLLET'S EXPERIMENT.



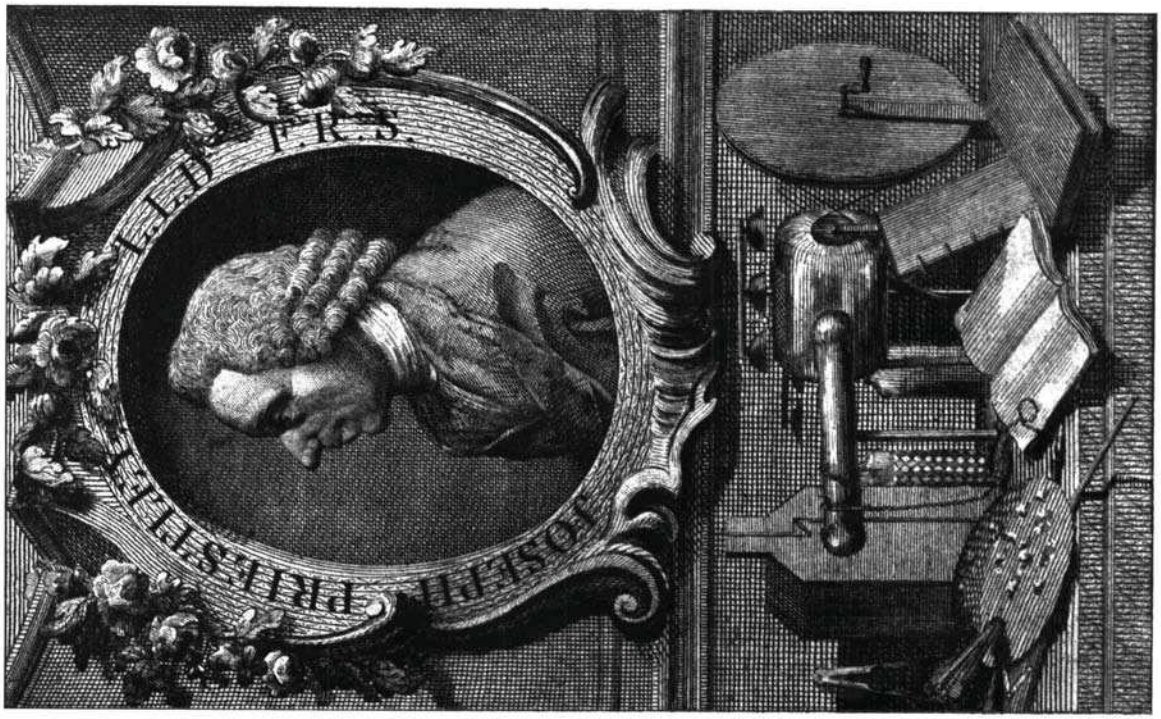
LESAGE'S TELEGRAPH.

Plate 7.

(Mr. Fahie's paper.)

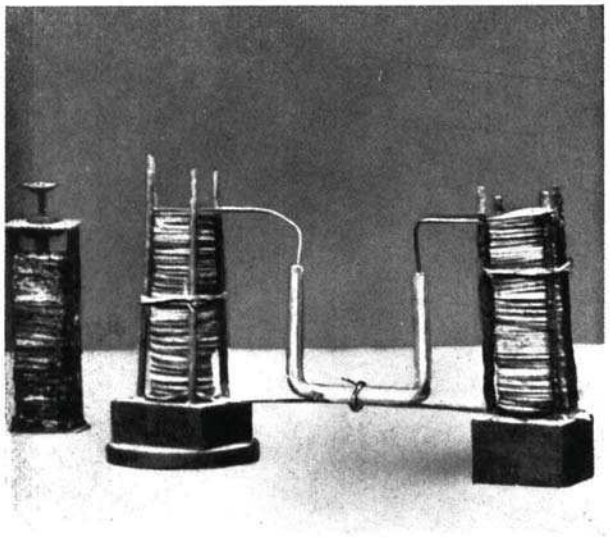


JOSEPH PRIESTLEY.
1733–1804.

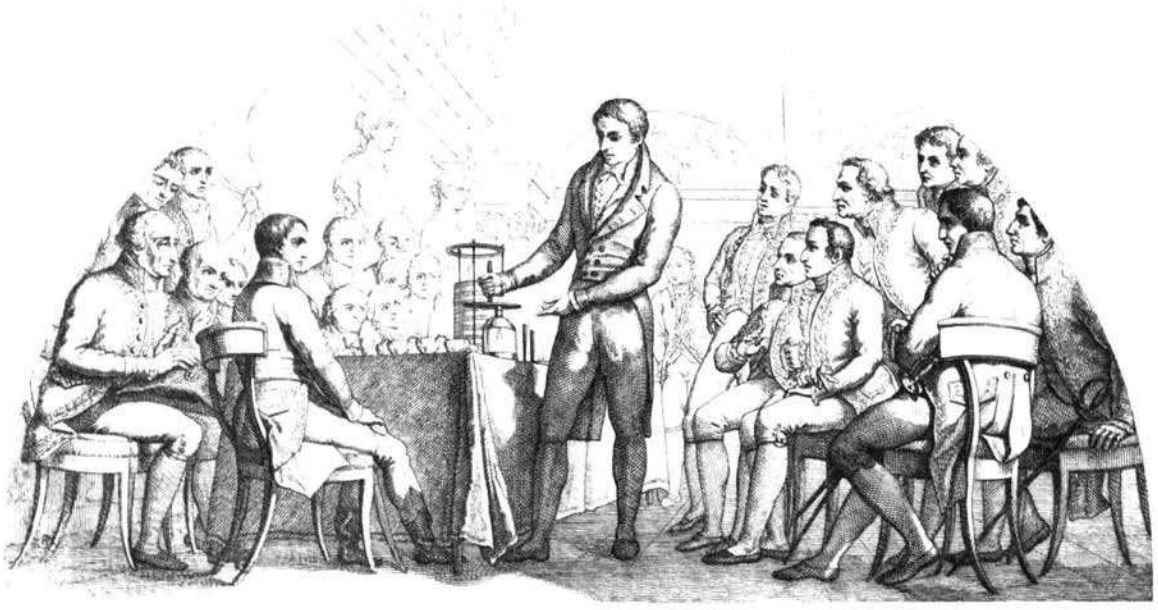


BENJAMIN FRANKLIN.
1706–1790.

Plate 8.
(Mr. Fahie's paper.)



RELICS OF VOLTA.



VOLTA AND NAPOLEON.

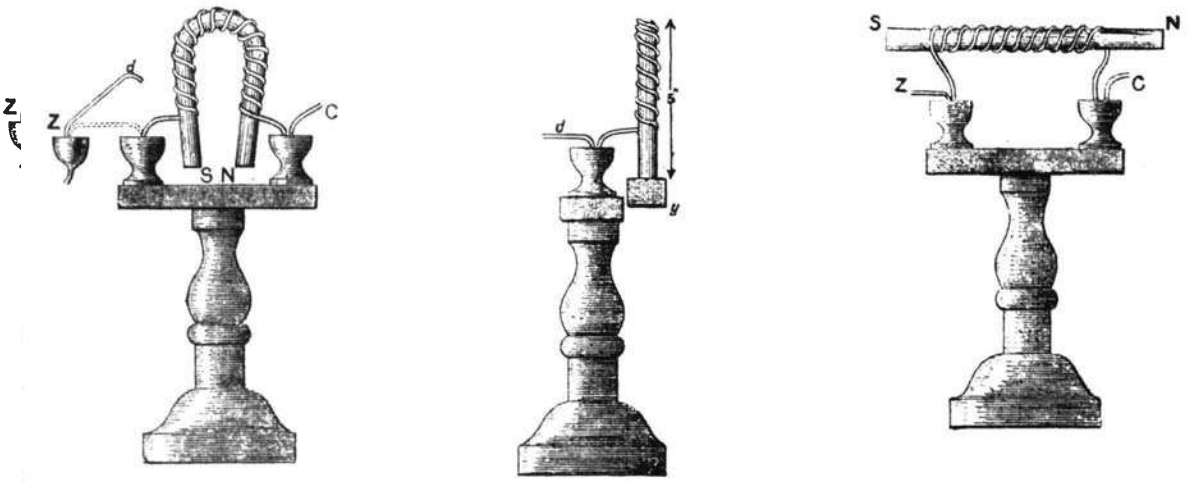
DAVY.
1778–1829.

WOLLASTON.
1766–1828.

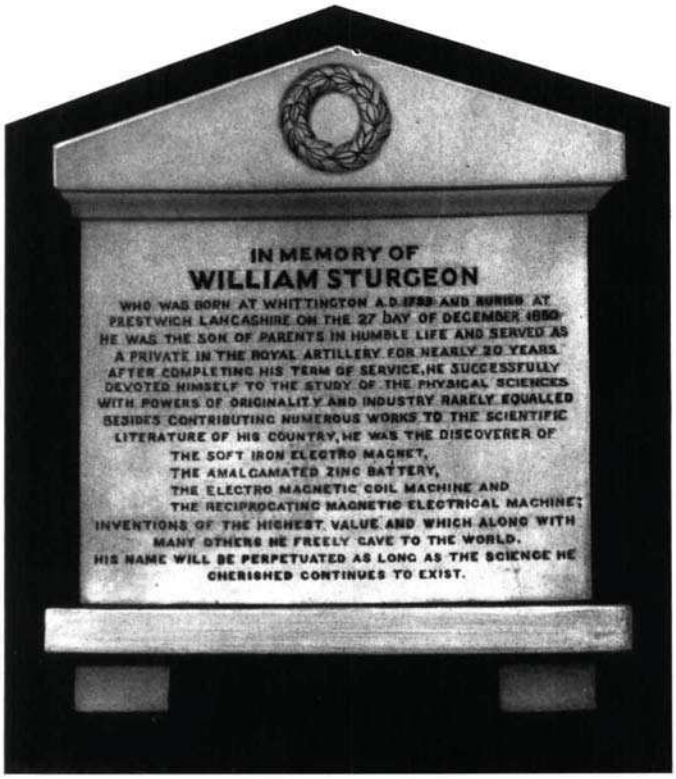
THE "LENS OF BREGANO" (1690).

Plate 9.
(Mr. Fahie's paper.)

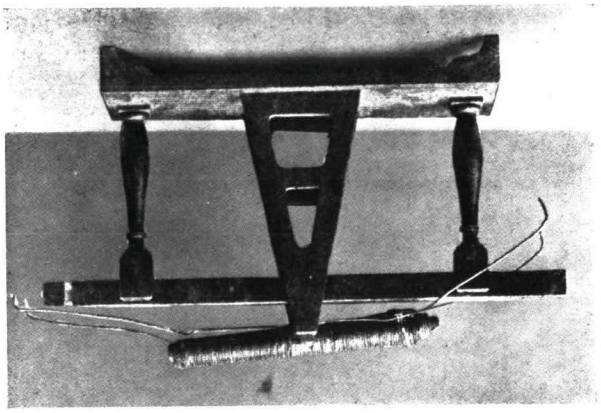
Plate 10.
(Mr. Fahie's paper.)



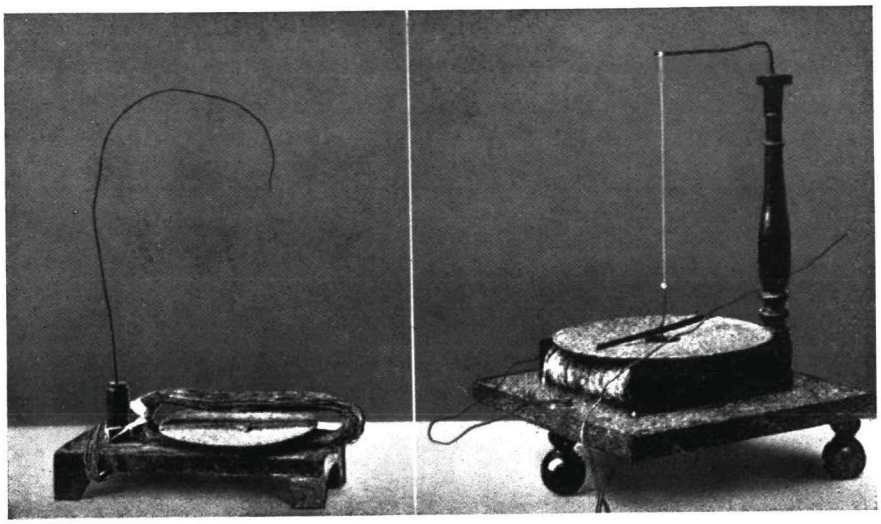
EARLIEST FORM OF ELECTROMAGNET, DUE TO STURGEON.



STURGEON TABLET IN THE PARISH CHURCH OF
KIRKBY LONSDALE, LANCASHIRE.

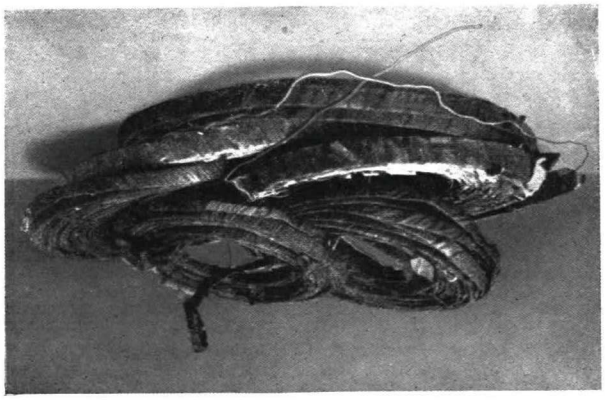


INDUCTION COILS.

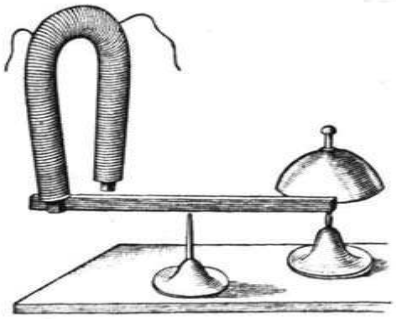


INTENSITY GALVANOMETER WITH FINE-WIRE COIL.

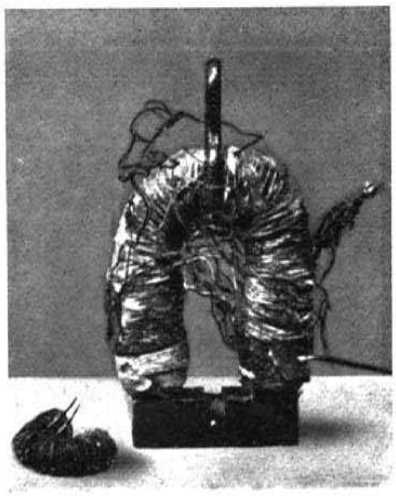
QUANTITY GALVANOMETER WITH COARSE-WIRE COIL.



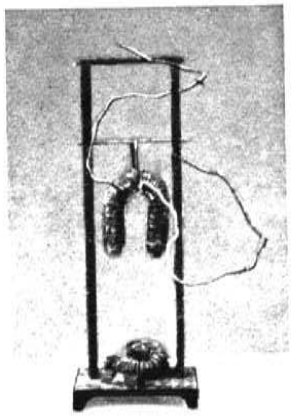
HENRY'S FIRST ELECTRIC MOTOR.



BELL-RINGING ARRANGEMENT.



"QUANTITY" MAGNET.

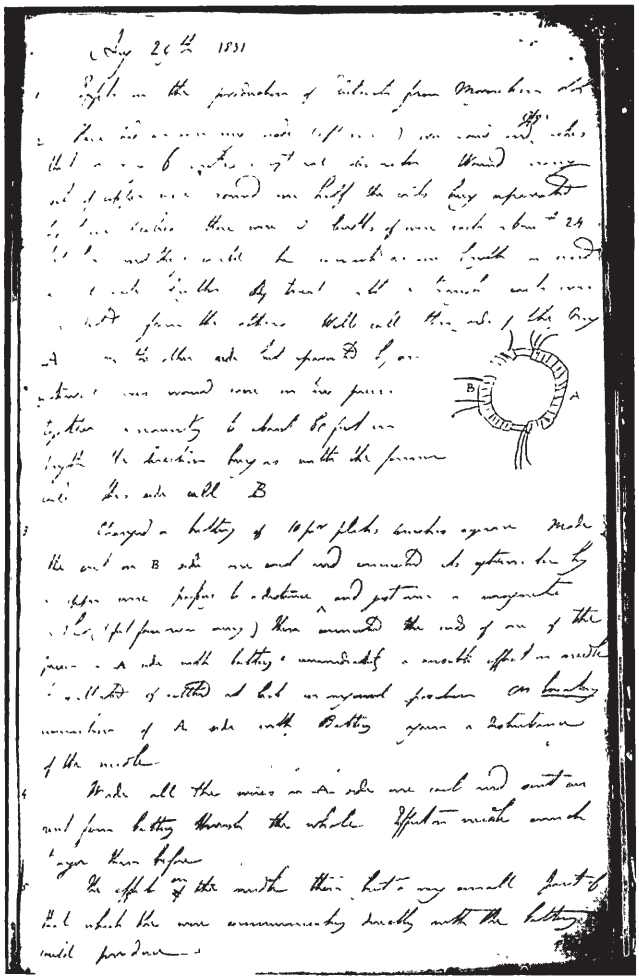


"INTENSITY" MAGNET.

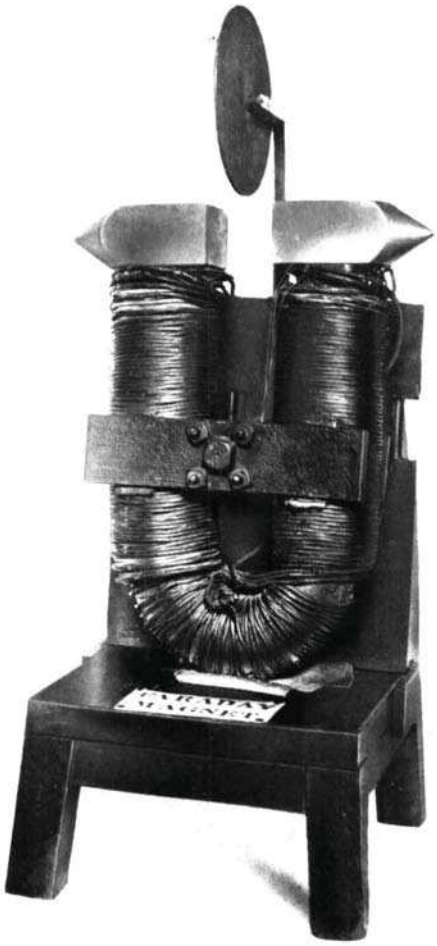
PIECES OF APPARATUS USED BY HENRY.

Plate 12.

(Prof. Cramp's Faraday Lecture, see page 1357.)

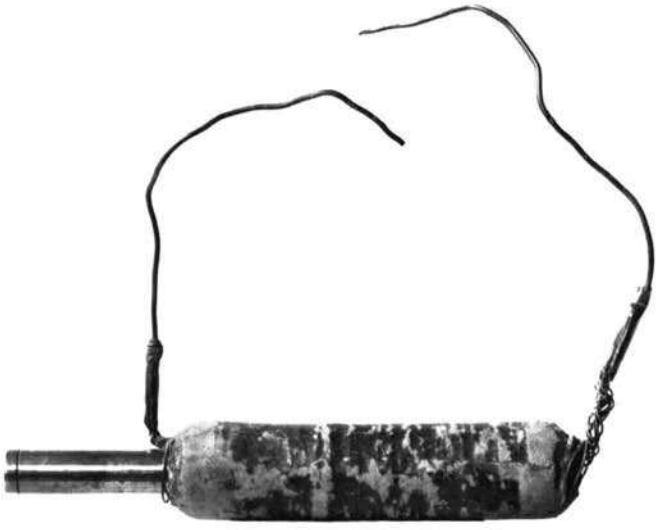


PAGE OF FARADAY'S DIARY RECORDING THE DISCOVERY OF ELECTROMAGNETIC INDUCTION.



FARADAY'S ELECTROMAGNET AND DISC.

FARADAY'S RING OF SOFT IRON WOUND WITH SEPARATE COILS OF COPPER WIRE, USED IN HIS FIRST SUCCESSFUL EXPERIMENT IN ELECTRO-MAGNETIC INDUCTION.



FARADAY'S HELIX OF COPPER WIRE AND BAR MAGNET, WITH WHICH HE FIRST INDUCED AN ELECTRIC CURRENT BY PLUNGING THE MAGNET INTO THE COIL.